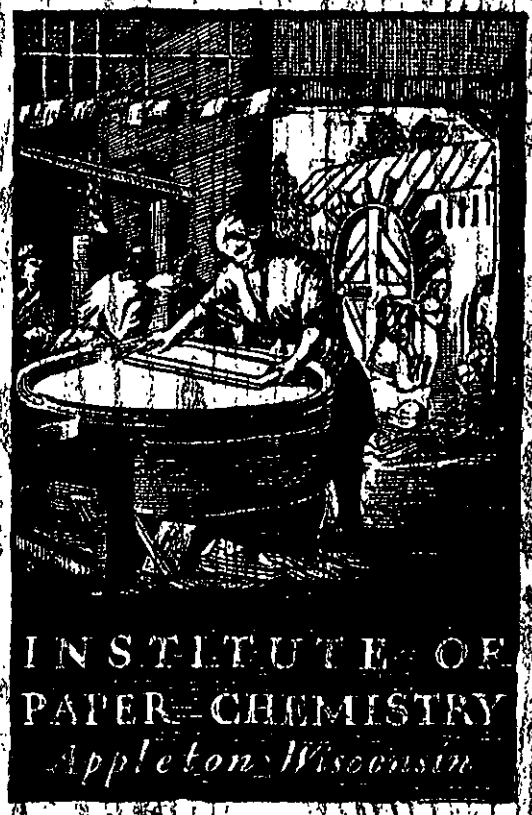

CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 129

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

April 1, 1958

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

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In conjunction with the F.K.I. Continuous Baseline Study, The Institute of Paper Chemistry has been directed to identify the participating mills by means of a scrambled system of code letters. Under this system, which was initiated in Progress Report 105, each mill is identified by a code letter different from that used for the previous month.

During the month of March, eighty different sample lots of 42-lb. Fourdrinier kraft linerboard from seventeen different F.K.I. mills were processed at The Institute of Paper Chemistry. A tabulation of the number of samples classified according to mill may be seen in Table I.

TABLE I

DISTRIBUTION OF 42-LB. LINERBOARD SAMPLES

Mill Code	Samples Submitted
A	1
B	9
C	9
D	2
E	3
F	8
G	3
H	3
I	4
J	6
K	5
L	0
M	1
N	3
O	6
P	6
Q	8
S	3
Total	80

These sample lots were tested for basis weight, caliper, bursting strength, and Elmendorf tear. The average strength results for each mill may be seen in Table II and are graphically presented in Figures 1 to 5. In addition to a comparison of the mill averages for the various tests, Table II also shows the current F.K.I. averages, the cumulative F.K.I. averages, and the F.K.I. indexes. The cumulative F.K.I. average is based on the results for the previous twelve months excluding the current period. Hence, in the case of the current report, it covers the period from March 1, 1957 to February 28, 1958. The F.K.I. indexes are obtained as follows:

$$\frac{\text{current F.K.I. average}}{\text{cumulative F.K.I. average}} \times 100 = \text{F.K.I. index (\%)}$$

The F.K.I. index provides a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 43.4 lb., and the cumulative F.K.I. average basis weight is 43.1 lb. Hence, the F.K.I. index for basis weight determined in percent as indicated above is 100.7% and signifies that the current average basis weight is higher than the cumulative average.

A comparison of the results in Table II and Figure 1 shows that the average basis weight results for all mills conform to the 42-lb. specification set forth in Rule 41. Mill B had the highest average basis weight, 44.6 lb. or approximately 6.2% higher than the 42-lb. specification. Mill N had the lowest average basis weight of 42.5 lb., which was approximately 1.2% higher than the 42-lb. specification.

The amount by which the mills vary from the 42-lb. specification is as follows:

Mill Code	Per Cent
A	+4.8
B	+6.2
C	+1.4
D	+5.0
E	+4.8
F	+3.3
G	+1.7
H	+4.3
I	+4.3
J	+4.3
K	+2.1
L	--
M	+2.1
N	+1.2
O	+1.7
P	+3.8
Q	+3.8
S	+3.1

A comparison of the average basis weight data for the previous period with the current F.K.I. average indicated that the basis weight results have increased slightly from 43.1 lb. to 43.4 lb.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the current mill averages varied from a low of 11.6 points for Mill H to a high of 13.4 points for Mills M and S. The current F.K.I. average is 12.6 points, slightly lower than the cumulative F.K.I. average of 12.7 points, as indicated by the F.K.I. index of 99.2%.

The average bursting strength values obtained for each mill are graphically presented in Figure 3. It may be observed in Table II and Figure 3 that the current mill averages for oursting strength ranged from

a low of 101 for Mill M to a high of 120 for Mill Q. The current F.K.I. average bursting strength is 112 p.s.i. g., which is slightly higher than the cumulative F.K.I. average of 111 p.s.i.g.

A graphic comparison of the Elmendorf tear results for the various mills is given in Figures 4 and 5. The data of Table II show that Mill C had the highest average machine direction tear value of 363 g./sheet, and that Mill O had the lowest value of 275 g./sheet. It may be further noted in Table II that Mill C also had the highest cross-machine direction tear value of 406 g./sheet and that Mill O had the lowest value of 339 g./sheet. It may be noted that the current F.K.I. average for machine-direction Elmendorf tear is slightly lower than the cumulative and the corresponding average for cross-machine direction Elmendorf tear is slightly higher than the cumulative.

A comparison of the F.K.I. indexes indicates that, for the current period, the current F.K.I. averages for basis weight, bursting strength, and cross-machine direction Elmendorf tear are slightly higher than their cumulative F.K.I. average whereas the current F.K.I. averages for caliper and machine direction Elmendorf tear are slightly lower than their cumulative F.K.I. averages.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XX for Mills A and S, respectively.

The results obtained on special drum stock are presented in Table XXI.

In addition to the current and cumulative average, the mill factor and mill index are given for each mill. The cumulative mill average is the average test result obtained on the samples submitted by the particular mill for the previous twelve months excluding the current period. The mill factor and the mill index are obtained as follows:

$$\frac{\text{current mill average}}{\text{cumulative mill average}} \times 100 = \text{mill factor (\%)}$$

$$\frac{\text{current mill average}}{\text{cumulative F.K.I. average}} \times 100 = \text{mill index (\%)}$$

The mill factor and the mill index are a convenient means for comparing the current mill results either with the previous results for that particular mill or with the cumulative F.K.I. results. The reports also present a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry. These test data are presented and discussed on subsequent pages of this report.

It may be noted in Tables III through XXI that the test data include information about the sheet finish. The summarized results for the mills which submitted sample lots during the current period are as follows:

Mill Code	No. of Sample Lots W.F.	D.F.	Misc.
A			1[a]
B	9		
C	9		
D	2[b]		
E	3		
F	8		
G	3		

(Continued on the following page)

Mill Code	No. of Sample Lots W.F.	D.F.	Misc.
H	3		
I	4		
J	4, 2[b]		
K	5[b]		
L	No samples submitted.		
M	1		
N	3[b]		
O	5		1[c]
P	6		
Q	8		
S	3[b]		
R[d]	No samples submitted.		

[a] Natural.
[b] One side.
[c] Unidentified.
[d] Drum linerboard.

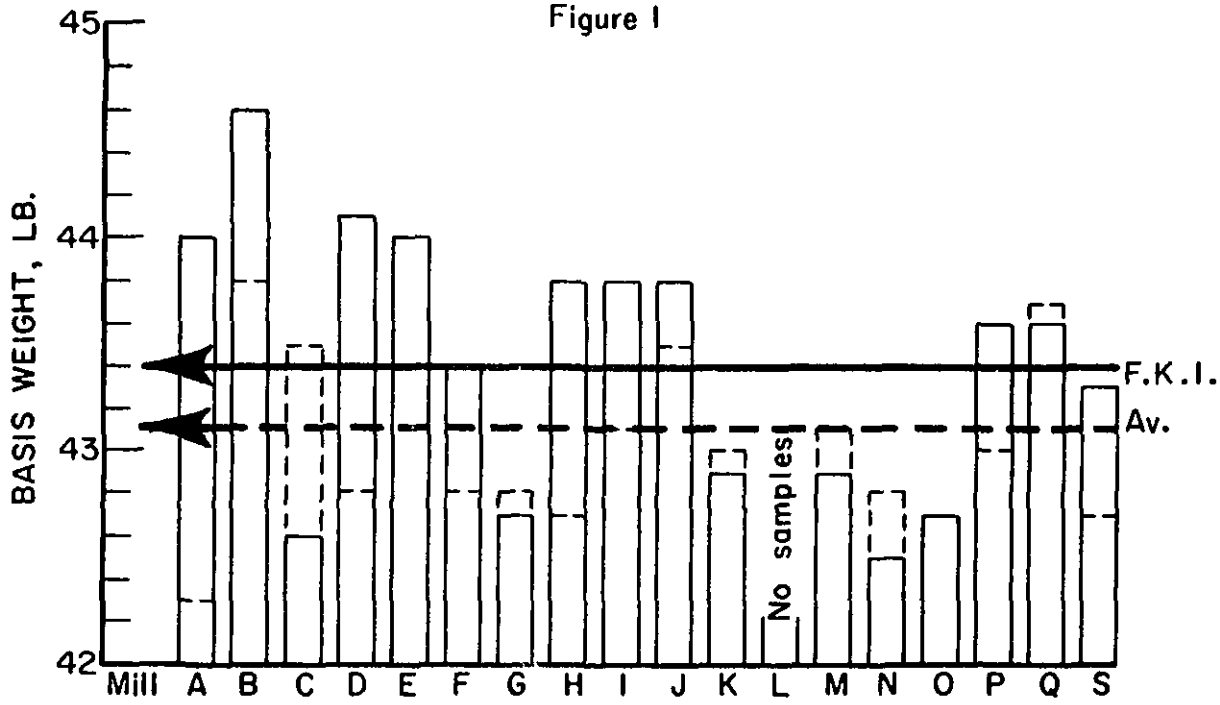
The results indicate that the majority of the participating mills are using a water finish on their 42-lb. linerboard.

TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--MARCH 1 THROUGH MARCH 31, 1958

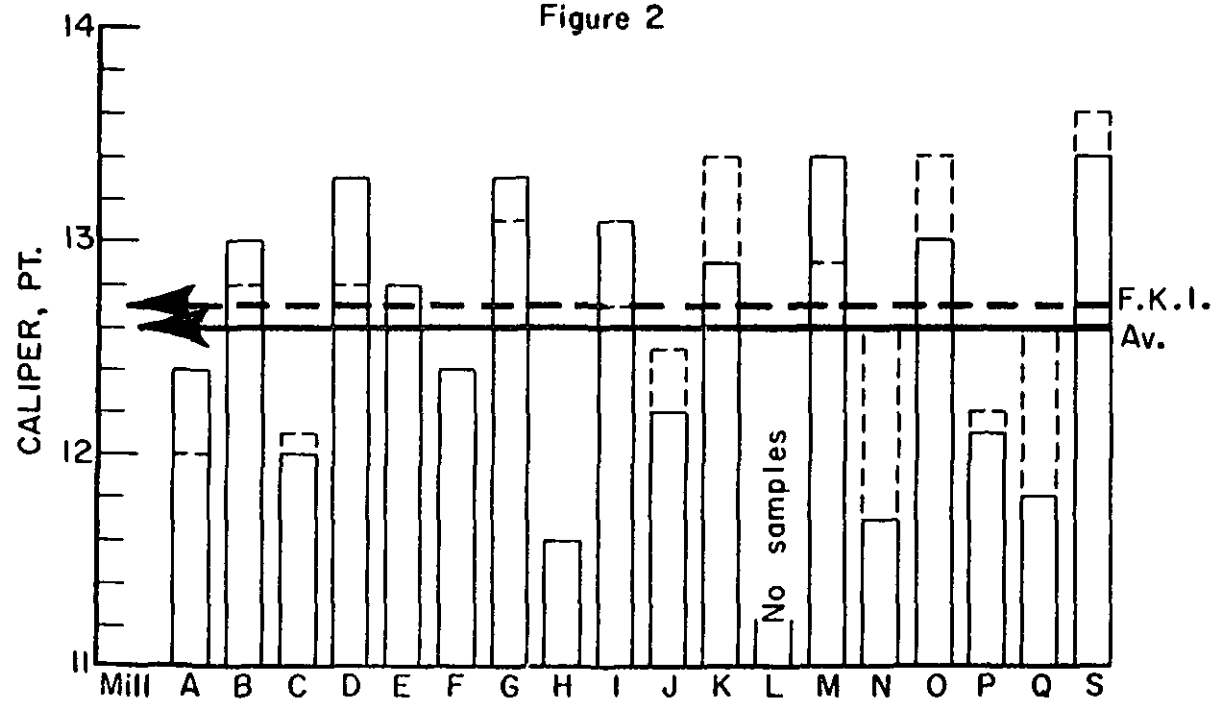
Mill	Basis Weight, lb.	Caliper, points	Bursting Strength p.s.i. gage	Elmendorf Tear, g./sheet In Machine	Elmendorf Tear, g./sheet Cross Machine
A	44.0	12.4	117	321	363
B	44.6	13.0	107	335	367
C	42.6	12.0	112	363	406
D	44.1	13.3	112	304	369
E	44.0	12.8	112	306	358
F	43.4	12.4	109	304	364
G	42.7	13.3	109	355	364
H	43.8	11.6	115	353	385
I	43.8	13.1	116	346	386
J	43.8	12.2	117	327	379
K	42.9	12.9	110	314	358
L	No samples submitted during the past 12 months.				
M	42.9	13.4	101	343	376
N	42.5	11.7	114	318	397
O	42.7	13.0	110	275	339
P	43.6	12.1	111	349	361
Q	43.6	11.8	120	337	371
S	43.3	13.4	117	351	390
Current FMI Average:	43.4	12.6	112	329	373
Cumulative FMI Average:	43.1	12.7	111	333	372
FMI Index, %	100.7	99.2	100.9	98.8	100.3

Figure 1



COMPARISON OF BASIS WEIGHT RESULTS
(Period Mar. 1 - Mar. 31, 1958)

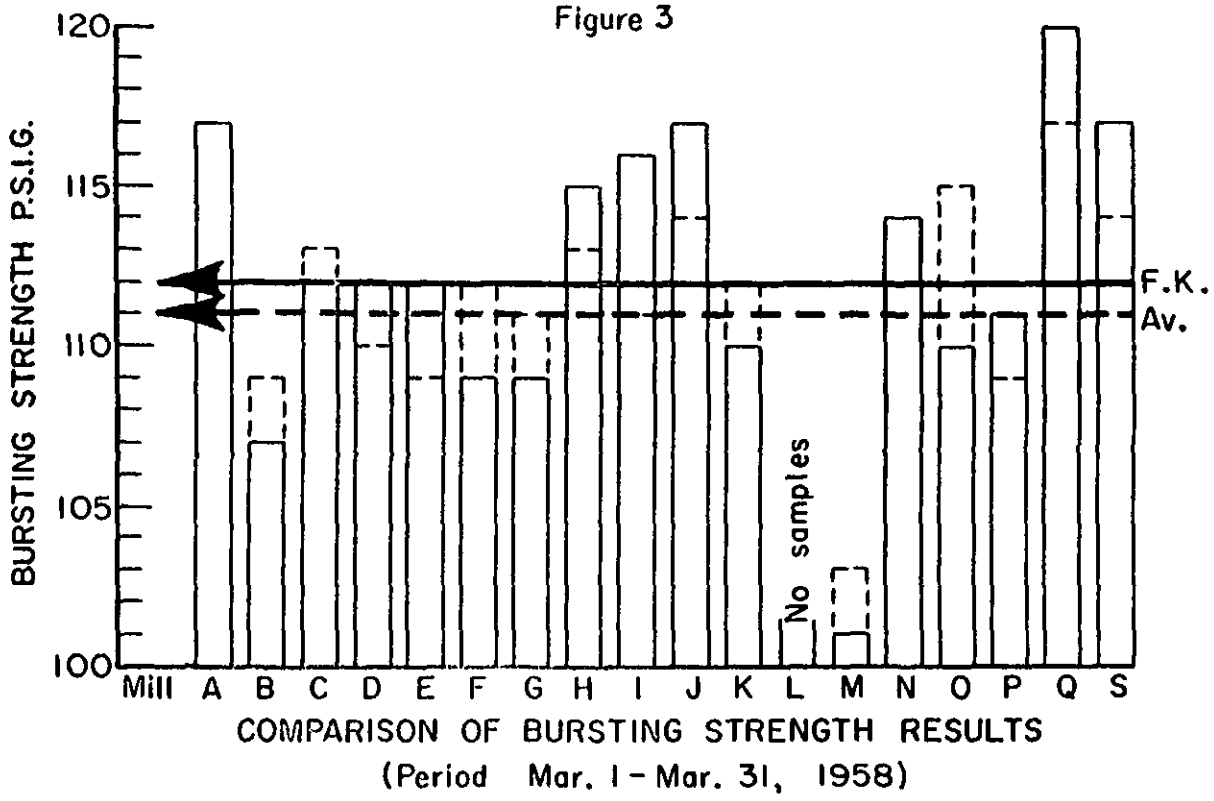
Figure 2



COMPARISON OF CALIPER RESULTS
(Period Mar. 1 - Mar. 31, 1958)

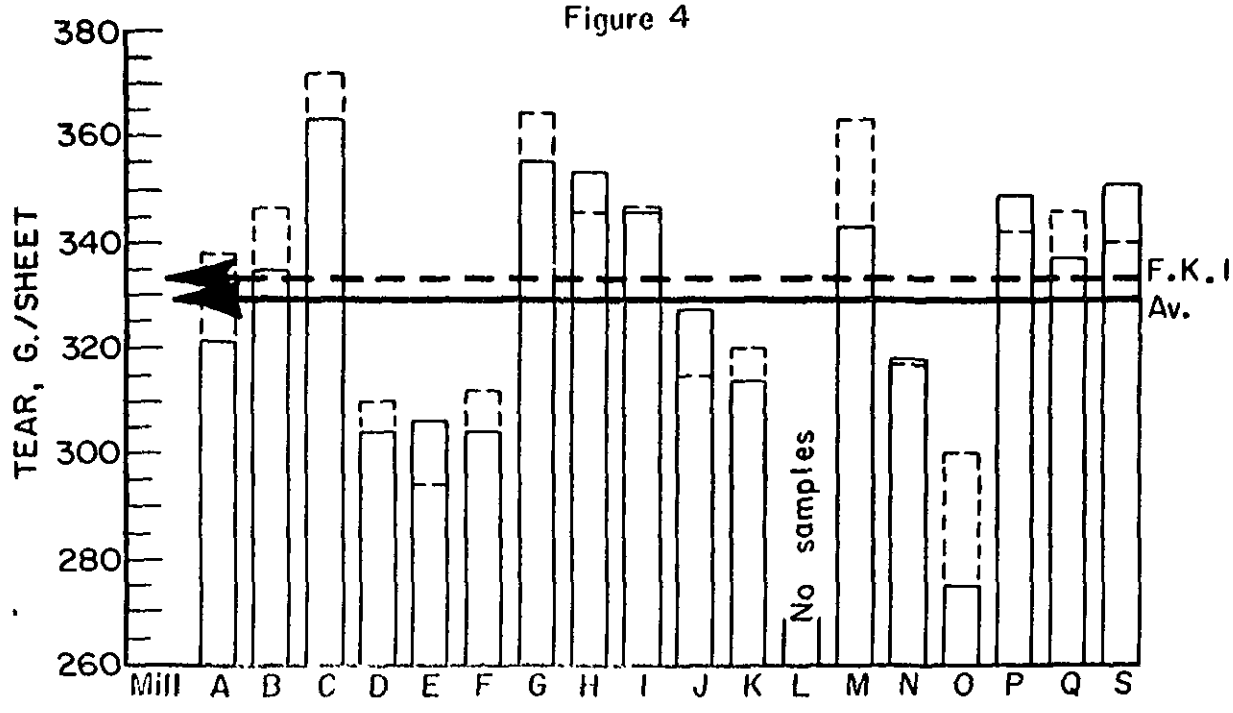
——— Current mill average
– – – – Cumulative mill average

Figure 3



COMPARISON OF BURSTING STRENGTH RESULTS
(Period Mar. 1 - Mar. 31, 1958)

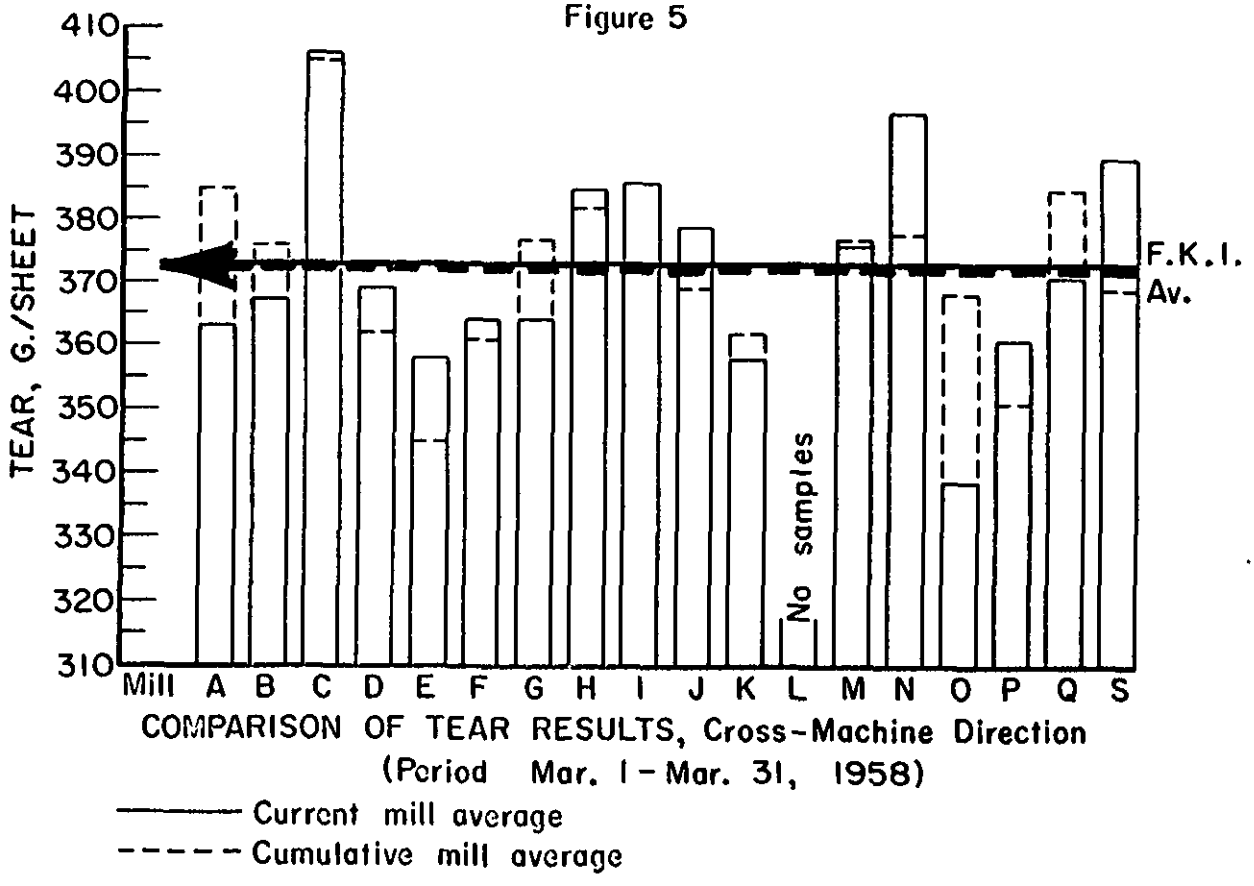
Figure 4



COMPARISON OF TEAR RESULTS, Machine Direction
(Period Mar. 1 - Mar. 31, 1958)

——— Current mill average
– – – – Cumulative mill average

Figure 5


410
400
390
380
370
360
350
340
330
320
310
TEAR, G./SHEET
F.K.I.
Av.
No samples
Mill A B C D E F G H I J K L M N O P Q S
COMPARISON OF TEAR RESULTS, Cross-Machine Direction
(Period Mar. 1 - Mar. 31, 1958)
Current mill average
Cumulative mill average

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958

TABLE III

MILL 1 -- 42-LB. LINERBOARD

Mill Number	Date Received	Date Made	Mach. No.	Basis Weight, lb. Max.	Min.	Av.	Caliper, points Max.	Min.	Av.	Bursting Strength, p.s.i. gage Max.	Min.	Av.	Elmendorf Tear, g./sheet In Max.	Min.	Av.	Across Max.	Min.	Av.
Sample at	3/4/58	2/24/58	2	44.4	43.6	44.0	12.8	12.0	12.4	134	103	117	360	264	321[a]	424	336	363[a]
Current mill average						44.0			12.4			117			321			363
Previous time mill average						42.3			12.0			111			338			385
Index factor, %						104.0			103.3			105.4			95.0			94.3
Mill index, %						102.1			97.6			105.4			96.4			97.6

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE IV

MILL B -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mon. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
197258	W.F.	3/ 3/58	2/25/58	-	47.4	45.4	46.1	13.6	12.7	13.0	129	96	115	368	312	339[a]	440	352	387[a]
197259	W.F.	3/ 3/58	2/26/58	-	44.4	43.4	43.3	13.5	12.4	13.2	117	81	101	440	296	354[a]	424	328	373[a]
197260	W.F.	3/ 3/58	2/27/58	-	44.8	43.8	44.4	13.6	13.0	13.2	122	75	103	360	280	334[a]	416	344	377[a]
197291	W.F.	3/20/58	3/12/58	-	44.8	43.6	44.0	13.2	12.3	12.9	121	87	104	350	288	326[a]	400	304	357[a]
197292	W.F.	3/20/58	3/13/58	-	44.0	43.2	43.8	12.3	12.0	12.1	125	91	108	392	288	329	392	336	359[a]
197293	W.F.	3/20/58	3/14/58	-	44.4	43.8	44.1	13.2	12.6	13.0	135	92	114	368	280	331[a]	400	336	367[a]
197792	W.F.	3/24/58	3/19/58	-	45.2	43.8	44.8	13.6	12.5	13.1	129	88	109	376	320	352[a]	400	336	362[a]
197793	W.F.	3/24/58	3/20/58	-	46.8	45.2	46.0	13.9	13.0	13.4	123	79	105	416	240	322[a]	400	328	357[a]
197794	W.F.	3/24/58	3/21/58	-	45.0	44.0	44.5	13.5	12.8	13.1	128	85	108	384	296	331[a]	400	320	364[a]
Current Mill Average							44.6			13.0			107			335			367
Cumulative Mill Average							43.8			12.8			109			347			376
Mill Factor, %							101.8			101.6			98.2			96.5			97.6
Mill Index, %							103.5			102.4			96.4			100.6			98.7

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

S. MARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE V

MILL C -- 42-LB. LINERBOARD

Sample	Machine	Date Tested	Date Made	Mch No	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
[illegible]	B	3/11/58	2/27/58	-	43.4	41.0	42.4	11.9	11.3	11.7	140	107	118	384	320	357[a]	448	344	407[a]
[illegible]	M.B.	3/11/58	2/27/58	-	42.4	40.6	41.7	12.1	10.9	11.5	131	98	117	384	336	358[a]	448	360	399[a]
[illegible]	M.B.	3/11/58	2/27/58	-	44.0	42.4	43.0	12.7	11.7	12.1	128	97	113	368	320	339[a]	440	360	397[a]
[illegible]	M.B.	3/11/58	2/28/58	-	44.0	41.4	42.7	12.6	11.8	12.2	137	88	107	416	352	383[a]	472	400	427[a]
[illegible]	M.B.	3/18/58	2/28/58	-	43.4	41.6	42.5	12.2	11.1	11.8	126	84	112	384	328	353[a]	480	384	421[a]
[illegible]	M.B.	3/18/58	3/ 1/58	-	44.0	42.0	43.1	13.1	11.9	12.5	126	82	109	456	296	367	536	376	419[a]
[illegible]	M.B.	3/24/58	3/ 8/58	-	43.4	41.6	42.6	12.8	11.7	12.2	121	78	110	464	320	391[a]	480	352	414[a]
[illegible]	M.B.	3/24/58	3/11/58	-	42.8	41.2	42.0	12.1	11.3	11.7	130	90	113	392	320	352[a]	400	304	375[a]
[illegible]	M.B.	3/24/58	3/12/58	-	44.4	42.0	43.1	12.8	11.8	12.3	130	94	108	456	320	370[a]	440	360	394[a]
Current Mill Average							42.6			12.0			112			363			406
Cumulative Mill Average							43.5			12.1			113			372			405
[illegible] Factor, %							97.9			99.2			99.1			97.6			100.2
[illegible] Index, %							98.8			94.5			100.9			109.0			109.1

[a]This average includes the readings for one or more specimens which tore beyond the 3/3-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE VI

MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
177507	FIS	3/10/58	2/24/58	1	46.0	44.0	44.8	13.8	12.9	13.4	143	90	113	328	272	301	416	360	385[a]
177734	FIS	3/20/58	3/11/58	1	44.0	42.4	43.4	13.5	13.0	13.2	136	88	110	400	248	307	400	320	353[a]
Current all average							44.1			13.3			112			304			369
Cumulative all average							42.8			12.8			110			310			362
All Factor, %							103.0			103.9			101.8			98.1			101.9
All Index %							102.3			104.7			100.9			91.3			99.2

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE VII

MILL E -- 42-LB. LINERBOARD

Code No.	Finish	Date Rec'd	Date Made	Test No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
[illegible]	.F	3/ 3/58	2/20/58	1	44.4	42.0	43.8	13.2	12.2	12.7	136	96	111	360	248	299[a]	400	320	367[a]
[illegible]	.F	3/2-/58	3/ 3/58	1	45.2	42.4	43.9	13.3	12.2	12.8	128	100	112	336	272	304	416	304	354[a]
[illegible]	.F.	3/2-/58	3/ 6/58	1	45.6	43.4	44.2	13.4	12.2	12.9	129	100	112	400	256	316	400	320	352[a]
Current mill average							44.0			12.8			112			306			358
Cumulative mill average							43.4			12.8			109			294			345
Mill factor, %							101.4			100.0			102.8			104.1			103.8
Mill Index, %							102.1			100.8			100.9			91.9			96.2

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE VIII

ALL F -- 42-LB. LINERBOARD

Mill & Machine No.	Finish	Date Recd.	Date Made	Mon. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
[illegible]-35	F.	3/ 7/58	2/18/58	2	44.0	42.2	43.0	12.9	12.0	12.5	123	77	105	352	256	306[a]	400	336	367[a]
[illegible]-36	F.	3/ 7/58	2/18/58	2	44.0	43.4	43.8	12.7	12.1	12.3	141	78	111	336	280	306	368	320	344[a]
[illegible]-511	F	3/10/58	2/20/58	2	44.0	42.2	43.3	13.0	11.8	12.4	137	91	113	336	264	305	408	323	359[a]
[illegible]-512	F	3/10/58	2/20/58	2	44.0	42.4	43.6	12.9	12.2	12.6	134	79	110	344	264	311	400	344	368[a]
[illegible]-51	F.	3/17/58	3/ 4/58	2	43.8	42.6	43.2	12.9	11.9	12.5	147	73	110	328	248	291	400	360	375[a]
[illegible]-55	F	3/17/58	3/ 4/58	2	44.0	42.8	43.6	12.5	12.0	12.2	138	83	112	328	256	290	400	336	366[a]
[illegible]-56	F	3/17/58	3/ 8/58	2	44.0	42.6	43.4	12.9	12.2	12.5	125	80	106	368	272	301	400	320	360[a]
[illegible]-57	F	3/17/58	3/ 8/58	2	44.0	42.8	43.5	13.3	11.5	12.6	138	89	109	368	272	319	400	328	359[a]
Current All Average							43.4			12.4			109			304			364
Corresponding All Average							42.8			12.4			112			312			361
All Factor, %							101.4			100.0			97.3			97.4			100.8
All Index, %							100.7			97.6			98.2			91.3			97.8

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE IX

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mon. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
177-34	M.	3/ 7/58	2/15/58	4	44.0	40.2	42.9	13.0	12.0	12.5	126	80	110	392	328	367	376	320	346[a]
177302	M.	3/24/58	3/ 5/58	2	44.6	42.4	43.6	14.3	13.2	13.9	130	92	110	424	320	364[a]	432	352	382[a]
177303	M.	3/24/58	3/ 6/58	2	42.8	40.8	41.6	14.2	13.2	13.6	121	92	107	384	296	334[a]	424	312	365[a]
Current Mill Average:							42.7			13.3			109			355			364
Cumulative Mill Average:							42.8			13.1			111			364			377
Mill Factor, %							99.8			101.5			98.2			97.5			96.6
Mill Index, %							99.1			104.7			98.2			106.6			97.8

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE X

MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Rec'd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
177399	M.F.	3/ 6/58	2/16/58	4	44.2	42.2	43.2	11.7	10.4	11.0	140	96	120	368	320	340[a]	400	352	372[a]
177400	M.F.	3/ 6/58	2/17/58	4	44.8	43.4	44.0	12.5	11.5	12.0	123	93	114	416	320	359[a]	416	328	383[a]
177401	M.F.	3/ 6/58	2/17/58	4	45.6	43.4	44.4	12.2	11.3	11.8	130	95	112	392	312	359[a]	456	368	401[a]
Current Mill Average							43.8			11.6			115			353			385
Cumulative Mill Average							42.7			11.6			113			346			382
Mill Factor, %							102.6			100.0			101.8			102.0			100.8
Mill Index, %							101.6			91.3			103.6			106.0			103.5

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XI

MILL I -- 42-LB. LINERBOARD

Test No.	Status	Date Reed.	Date Made	Mon. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
[illegible]	[illegible]	3/ 3/58	2/16/58	2	44.2	42.6	43.7	13.2	12.6	12.9	135	89	115	409	272	343[a]	456	368	391[a]
[illegible]262	[illegible]	3/ 3/58	2/17/58	2	44.2	43.4	43.7	13.2	12.6	12.9	[illegible]21	100	120	408	304	341[a]	424	368	390[a]
[illegible]313	[illegible]	3/10/58	2/27/58	2	44.2	43.4	43.9	13.5	13.0	13.2	140	96	116	400	288	354[a]	408	352	379[a]
[illegible]369	[illegible]	3/25/58	3/ 3/58	2	44.2	43.2	43.8	13.9	13.0	13.3	143	91	112	416	[illegible]18	345	432	352	385[a]
[illegible]rrent Mill Average:							43.8			13.1			116			346			386
[illegible]mulative Mill Average:							43.1			12.7			111			347			386
[illegible]ill Factor, %							101.6			103.1			104.5			99.7			100.[illegible]
[illegible]ill Index, %							101.6			103.1			104.5			103.9			103.8

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XII

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
177256	F	3/ 3/58	2/16/58	2	44.6	42.8	43.7	13.0	12.2	12.6	135	90	118	360	256	310[a]	392	344	367[a]
177257	F	3/ 3/58	2/17/58	2	44.6	43.0	43.8	13.0	11.8	12.5	147	101	119	344	272	310[a]	432	368	389[a]
177620	F	3/13/58	3/ 2/58	2	44.4	43.2	43.9	12.[illegible]	12.0	12.2	132	100	118	400	272	343[a]	416	352	387[a]
177651	F	3/14/58	3/ 5/58	2	44.2	43.6	44.0	13.2	12.0	12.6	138	91	119	392	312	359[a]	424	352	385[a]
177704	F	3/18/58	3/14/58	2	44.2	43.0	43.6	11.9	11.0	11.5	127	82	114	352	304	326[a]	392	352	373[a]
177705	F	3/19/58	3/14/58	2	44.8	43.6	44.0	12.2	11.5	11.9	124	94	114	336	288	314	416	328	370[a]
Current All Average							43.8			12.2			117			327			379
Cumulative All Average							43.5			12.5			114			315			369
All Factor, %							100.7			97.6			102.6			103.8			102.7
All Index, %							101.6			96.1			105.4			98.2			101.9

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XIII

MILL K -- 42-LB LINERBOARD

Date Sample	Finish	Date Received	Date Made	Mach. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
3/30	Flo	3/10/58	2/28/58	1	42.6	41.8	42.1	13.7	12.9	13.2	128	86	106	336	272	306	384	320	348[a]
3/30	Flo	3/10/58	2/28/58	1	43.6	42.0	42.6	13.8	12.9	13.2	125	84	107	368	304	331	384	312	349[a]
3/30	Flo	3/10/58	3/ 7/58	1	43.6	42.2	43.1	13.2	12.2	12.6	137	88	113	376	272	326[a]	408	352	381[a]
3/30	Flo	3/24/58	3/13/58	1	44.0	42.2	43.1	13.2	12.2	12.7	128	97	113	344	256	297[a]	384	312	353[a]
3/30	Flo	3/24/58	3/18/58	1	44.0	42.6	43.4	13.1	12.2	12.8	130	95	113	336	272	310[a]	384	328	357[a]
Current Mill Average							42.9			12.9			110			314			358
Cumulative Mill Average							43.0			13.4			112			320			362
Mill Factor, %							99.8			96.3			98.2			98.1			98.9
Mill Index, %							99.5			101.6			99.1			94.3			96.2

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XIV

MILL L -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
No samples submitted.																			

TABLE XV

MILL M -- 42-LB. LINERBOARD

177398	S.F.	3/ 5/58	2/26/58	7	43.6	42.0	42.9	14.0	13.0	13.4	122	84	101	400	288	343[a]	416	352	376[a]
Current Mill Average:							42.9			13.4			101			343			376
Cumulative Mill Average:							43.1			12.9			103			363			377
Mill Factor, %							99.5			103.9			98.1			94.5			99.7
Mill Index, %							99.5			105.5			91.0			103.0			101.1

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XVI

MILL N -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
177537	WFls	3/11/58	3/ 3/58	1	43.4	42.0	42.6	12.3	11.2	11.8	127	92	113	384	280	319[a]	448	352	393[a]
177538	WFls	3/11/58	3/ 4/58	1	43.4	41.6	42.6	12.1	11.0	11.6	128	98	114	352	264	315	456	360	399[a]
177692	WFls	3/18/58	3/13/58	1	43.0	41.4	42.2	12.2	11.1	11.7	128	93	116	376	272	321	504	344	401[a]
Current Mill Average:							42.5			11.7			114			318			397
Cumulative Mill Average							42.8			12.6			112			317			378
Mill Factor, %							99.3			92.9			101.8			100.3			105.0
Mill Index, %							98.6			92.1			102.7			95.5			106.7

[a]This average includes the readirgs for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XVII

MILL C -- 42-LB LINERBOARD

File No	Finish	Date Recd	Date Made	Mch No	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max	Min.	Av	Max	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
177563	W F	3/12/58	2/ 3/58	1	43 0	40.2	41.4	13 2	11.3	12.8	125	75	107	320	200	265	376	328	353[a]
177564	----	3/12/58	2/ 8/58	1	43.2	42.2	42 6	13 3	11.9	12.8	133	90	110	344	232	289	384	328	356[a]
177565	W.F	3/12/58	2/11/58	1	44.0	42 2	43.4	14.0	13.1	13.5	138	87	114	352	224	269	368	296	334[a]
177566	W.F	3/12/58	2/14/58	1	44.0	42.4	43 1	13.3	12.7	13.0	135	75	111	328	264	287[a]	344	320	334[a]
177567	W.F.	3/12/58	2/18/58	1	43.2	42.0	42.6	13.1	12.2	12.8	138	82	107	296	248	268[a]	352	296	326[a]
177568	W.F.	3/12/58	2/20/58	1	44.0	42.6	43.3	13.8	12.8	13.3	127	83	111	296	240	271[a]	352	304	332[a]
Current Mill Average:							42.7			13.0			110			275			339
Cumulative Mill Average.							42.7			13.4			115			300			368
Mill Factor, %							100.0			97.0			95.7			91.7			92.1
Mill Index, %							99.1			102.4			99.1			82.6			91.1

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XVIII

MILL P -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
177394	W.F.	3/ 4/58	2/13/58	-	44.4	42.4	43.4	11.5	11.0	11.2	120	93	109	360	312	343[a]	376	344	360[a]
177395	W.F.	3/ 4/58	2/13/58	-	44.0	42.4	43.3	11.7	11.0	11.3	122	87	110	376	312	341[a]	400	328	368[a]
177396	W.F.	3/ 4/58	2/17/58	-	44.0	42.2	43.1	13.0	11.8	12.3	132	100	114	368	296	330[a]	368	312	344[a]
177397	W.F.	3/ 4/58	2/17/58	-	44.2	42.2	43.4	12.7	11.8	12.3	124	88	112	384	304	344[a]	368	320	340[a]
177658	W.F.	3/17/58	3/ 3/58	-	45.8	43.8	44.4	13.5	12.3	12.8	140	92	118	480	296	371[a]	432	360	385[a]
177659	W.F.	3/17/58	3/ 3/58	-	45.0	43.2	43.9	13.1	12.0	12.6	127	87	106	416	328	365[a]	440	336	370[a]
Current Mill Average							43.6			12.1			111			349			361
Cumulative Mill Average							43.0			12.2			109			342			351
Mill Factor, %							101.4			99.2			101.8			102.0			102.8
Mill Index, %							101.2			95.3			100.0			104.8			97.0

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XIX

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
177652	W.F.	3/14/58	1/30/58	-	46.6	43.6	44.9	12.8	11.3	12.1	146	109	122	416	296	345[a]	440	360	398[a]
177653	W.F.	3/14/58	2/25/58	-	43.8	41.8	42.9	12.1	11.3	11.8	141	99	119	424	304	340[a]	400	328	371[a]
177706	W.F.	3/19/58	3/ 4/58	-	44.6	42.2	43.4	12.3	11.3	11.7	137	101	115	352	272	324[a]	384	312	349[a]
177707	W.F.	3/19/58	3/15/58	-	43.8	42.0	42.8	12.4	11.6	12.0	138	89	115	344	288	321[a]	384	312	351[a]
177708	W.F.	3/19/58	3/16/58	-	44.4	42.8	43.8	12.1	10.8	11.7	138	100	125	392	288	353[a]	416	344	382[a]
177709	W.F.	3/19/58	3/16/58	-	44.6	43.6	44.0	12.1	11.3	11.8	135	105	123	408	304	348[a]	416	368	393[a]
177710	W.F.	3/19/58	3/16/58	-	44.2	42.4	43.3	12.0	11.2	11.8	128	101	116	368	288	330[a]	416	320	355[a]
177711	W.F.	3/19/58	3/16/58	-	44.2	42.8	43.8	12.1	11.2	11.8	144	90	124	384	320	337	400	336	370[a]
Current Mill Average:							43.6			11.8			120			337			371
Cumulative Mill Average:							43.7			12.6			117			346			385
Mill Factor, %							99.8			93.7			102.6			97.4			96.4
Mill Index, %							101.2			92.9			108.1			101.2			99.7

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XX

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
177752	MF1S	3/21/58	3/11/58	2	44.2	43.0	43.8	13.7	13.1	13.4	142	93	118	400	320	354[a]	432	352	395[a]
177753	MF1S	3/21/58	3/12/58	2	43.6	41.8	42.5	13.4	12.8	13.0	135	103	121	400	304	338[a]	408	352	381[a]
177791	MF1S	3/24/58	3/17/58	2	44.4	42.4	43.5	14.3	13.2	13.9	124	99	113	464	304	360[a]	456	352	394[a]
Current Mill Average:							43.3			13.4			117			351			39[illegible]
Cumulative Mill Average:							42.7			13.6			114			340			369
Mill Factor, %							101.4			98.5			102.6			103.2			105.7
Mill Index, %							100.5			105.5			105.4			105.4			104.8

TABLE XXI

MILL R -- 47-LB. DRUM LINERBOARD

No samples submitted.

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

As a supplementary part of the Continuous Baseline Study, comparisons of the mill test results with those obtained at The Institute of Paper Chemistry on corresponding samples have been included in this report. As may be noted in Table XXII, the atmospheric conditions used prior to and during the testing period were relatively uniform for the mills which reported this information. However, the conditioning periods varied considerably.

TABLE XXII

Mill Code	Preconditioning R.H., %	Preconditioning Temp., °F.	Preconditioning Time, hr.	Conditioning R.H., %	Conditioning Temp., °F.	Conditioning Time, hr.
A	50	72	--	49	72	24
B	34-36	78	8	51-52	72-73	16
C		None		49-52	70-72	48
D	47-50	74	72	47-50	74-75	2
E	42-48	65-68	0.5	50	73	24
F	50	73	24	50	73	24
G		None		50-53	73	--
H		None		50	73	24
I		None		50	73	24
J		None		50	73	24
K		None		34-50	75-92	--
L	No samples submitted.					
M	50	73	24		None	
N		None		49-56	69-72	--
O		None		33-50	70-78	--
P		None		50	73	0.5
Q		None		50	73	36-48
S	50	72	24		None	

A summary of the Institute and mill test results for the current period is shown in Table XXIII, and a comparison of differences between Institute and mill test results is given in Table XXIV for the current

period and the two previous periods. The comparisons are given in Tables XXV to XLII, for the 42-lb. liner samples. A comparison of the special drum stock is given in Table XLIII. In all the comparisons given in Tables XXV to XLIII, the Institute's test values have been used as the reference line.

A comparison of the test data in Tables XXIII and XXIV reveals the level of agreement between mill and Institute data for basis weight, caliper, bursting strength, and Elmendorf tear. Table XXIII shows the average difference between Institute and mill test results for all sample lots submitted by each mill for the current period. In addition, the maximum difference encountered in comparing the Institute and mill test results for a given sample lot is shown. In Table XXIV, the average differences shown for each test in Table XXIII have been calculated on a percentage basis for each mill. In addition, for purposes of comparison, the average percentage differences for the preceding two periods are shown.

It may be noted in Table XXIV that the maximum variation between the average basis weight results of the Institute and those of a given mill on corresponding samples is three per cent for the current period. By comparison, the maximum percentage variation noted for the previous two periods was five per cent. Further, it may be noted that the average basis weight results for Mills B and S were higher than those for the Institute, and the average results for the other mills were lower. None of the variations appear to be excessive.

The maximum variation in caliper for the current period is six per cent. The maximum variation for the previous two periods was seven per cent.

Compared with the Institute's results, the test result for Mill V was the same, the test result for Mill E was higher, and the test results for the rest of the mills were lower. The variations associated with Mills A and D appear to be excessive.

It may be noted in Table XXII that the bursting strength results exhibited a maximum variation of eleven per cent for the current period. The average results for Mills B, C, E, F, I, K, M, O, and S were higher than those for the Institute, the average results for Mills G, J, and Q were the same, and the results for the other mills are lower. The variation of eleven per cent associated with Mill A is excessive.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills E, I, M, N, P, and S were higher than those for the Institute, the average result for Mill J was the same as that for the Institute and the results for the other mills were lower. The maximum variation for the current period is eighteen per cent. For the current period the variations associated with the results for Mills A, D, H, and O appear to be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills E, G, I, K, M, N, P, Q, and S were higher than those for the Institute, the average result for Mill J was the same as that for the Institute, and the average results for the other mills were lower. The maximum variation for the current period was ten per cent. The variation associated with the result for Mill H appears to be large enough to be questioned; otherwise, agreement between mill and Institute results is very good.

TABLE XXIII

SUMMARY OF TEST RESULT COMPARISONS (AVERAGE MILL AND INSTITUTE RESULTS)

Mills	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S
No. Samples Compared*	1	9	9	2	3	6	3	3	4	6	5	0	1	3	6	6	6	3
Basis Weight																		
Institute	44.0	44.6	42.6	44.1	44.0	43.4	42.7	43.8	43.8	43.8	42.9		42.9	42.5	42.7	43.6	43.6	43.3
Mill	42.9	44.7	42.3	42.6	43.1	43.3	42.4	43.5	43.6	43.1	41.8		42.8	42.2	41.7	43.4	43.4	43.7
Av. Diff.**	-1.1	+0.1	-0.3	-1.5	-0.9	-0.1	-0.3	-0.3	-0.2	-0.7	-1.1		-0.1	-0.3	-1.0	-0.2	-0.2	+0.4
Max. Diff.***	-1.1	+1.3	-0.7	-2.4	-1.1	-0.6	-0.4	-0.5	-0.9	-1.1	-1.6		-0.1	-0.5	-1.8	-0.7	-0.7	+0.8
Caliper																		
Institute	12.4	13.0	12.0	13.3	12.8	12.4	13.3	11.6	13.1	12.2	12.9		13.4	11.7	13.0	12.1	11.8	13.4
Mill	11.6	12.7	11.6	12.6	13.0	12.2	12.9	11.2	12.9	11.9	12.5		13.1	11.7	12.8	11.9	11.7	12.9
Av. Diff.**	-0.6	-0.3	-0.4	-0.7	+0.2	-0.2	-0.4	-0.4	-0.2	-0.3	-0.4		-0.3	0.0	-0.2	-0.2	-0.1	-0.5
Max. Diff.***	-0.8	-0.7	-0.6	-0.8	+0.2	-0.5	-0.5	-0.5	-0.4	-0.5	-0.7		-0.3	±0.1	-0.6	-0.5	-0.2	-1.0
Bursting Strength																		
Institute	117	107	112	112	112	109	109	115	116	117	110		101	114	110	111	120	117
Mill	104	111	113	110	114	111	109	109	118	117	111		105	108	112	110	120	118
Av. Diff.**	-13	+4	+1	-2	+2	+2	0	-6	+2	0	+1		+4	-6	+2	-1	0	+1
Max. Diff.***	-13	+8	+7	-3	+4	+8	±1	-8	+3	+3	+4		+4	-9	+6	-3	+4	+2
Tearing Strength, in																		
Institute	321	335	363	304	306	304	355	353	346	327	314		343	318	275	349	337	351
Mill	275	320	348	264	312	299	340	297	370	327	305		348	337	226	360	319	362
Av. Diff.**	-46	-15	-15	-40	+6	-5	-15	-56	+24	0	-9		+5	+19	-49	+11	-18	+11
Max. Diff.***	-46	-41	-60	-67	+13	-15	-23	-70	+34	+61	-62		+5	+21	-67	+32	-37	+26
Tearing Strength, across																		
Institute	363	367	406	369	358	364	364	385	386	379	358		376	397	339	361	371	390
Mill	337	364	400	356	370	348	374	345	420	379	365		397	404	314	392	382	415
Av. Diff.**	-26	-3	-6	-13	+12	-16	+10	-40	+34	0	+7		+21	+7	-25	+31	+11	+25
Max. Diff.***	-26	-34	-41	-22	+20	-42	+17	-52	+41	+67	+29		+21	+18	-53	+51	-40	+42

* Comparison based on averages involved only those samples on which mill test data were submitted.
** Average difference is the difference between the Institute mill average and the mill average based on mill test data.
*** Maximum difference encountered in comparing the Institute average and the mill average for any sample submitted by that particular mill.

TABLE XXIV

COMPARISON OF INSTITUTE-MILL DIFFERENCES BY PERIODS
Average Differences, per cent

Mill	Period	Basis Weight	Caliper	Burst	Tear, in	Tear, across
A	Current	-2	-6	-11	-14	-7
	128th	0	-3	-2	-9	-3
	127th	+ 0.9	-4	-5	-4	+4
B	Current	+0.2	-2	+4	-4	-0.8
	128th	-0.2	-5	+1	-9	-6
	127th	+2	-3	+3	-3	+0.3
C	Current	-0.7	-3	+0.9	-4	-1
	128th	-1	-3	+2	+3	+4
	127th	-0.7	-4	+2	+4	+6
D	Current	-3	-5	-2	-13	-4
	128th	-1	-6	-0.9	-22	-5
	127th	-5	-7	-1	-6	+3
E	Current	-2	+2	+2	+2	+3
	128th	+0.2	0	+3	+3	+3
	127th	-0.2	+0.8	+1	+4	+4
F	Current	-0.2	-2	+2	-2	-4
	128th	+0.2	-3	+5	0	0
	127th	+0.7	-3	+4	-2	0
G	Current	-0.7	-3	0	-4	+3
	128th	-0.5	-2	-2	-3	+0.3
	127th	-0.7	-3	-4	-4	+0.3
H	Current	-0.7	-3	-5	-16	-10
	128th	--	--	--	--	--
	127th	-0.5	-2	-6	-15	-9
I	Current	-0.5	-2	+2	+7	+9
	128th	-0.2	-2	+4	+6	+9
	127th	-0.2	-5	-0.9	+2	+9
J	Current	-2	-2	0	0	0
	128th	-2	-0.8	-3	+1	+4
	127th	-0.9	-2	+0.9	+2	+5
K	Current	-3	-3	+0.9	-3	+2
	128th	--	--	--	--	--
	127th	-2	-5	0	-2	+0.5
L	Current	--	--	--	--	--
	128th	--	--	--	--	--
	127th	--	--	--	--	--
M	Current	-0.2	-2	+4	+1	+6
	128th	0	-0.8	+4	-5	+4
	127th	-0.5	-2	0	-4	+1
N	Current	-0.7	0	-5	+6	+2
	128th	-0.9	-2	-6	+8	+4
	127th	--	--	--	--	--
O	Current	-2	-2	+2	-18	-7
	128th	-2	-2	-3	-5	-2
	127th	-2	-3	-4	-6	+0.3
P	Current	-0.5	-2	-0.9	+3	+9
	128th	-1	-2	-2	+2	+8
	127th	--	--	--	--	--
Q	Current	-0.5	-0.8	0	-5	+3
	128th	0	-2	-0.8	-1	+6
	127th	-0.7	+0.8	-3	-7	-3
S	Current	+0.9	-4	+0.9	+3	+6
	128th	+2	-3	-0.9	+7	+10
	127th	+2	-3	-5	+3	+12

COMPARISON OF INSTITUTE AND MILL DATA--MARCH 1 THROUGH MARCH 31, 1958

TABLE XXV

MILL A -- 42-LB. LINERBOARD

Test No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
177393	Nat.	2/24/58	2	44.0	42.9	-1.1	12.4	11.6	-0.8	117	104	-13	321	275	-46	363[a]	337	-26
Current Mill Average:				44.0	42.9	-1.1	12.4	11.6	-0.8	117	104	-13	321	275	-46	363	337	-26

TABLE XXVI

MILL B -- 42-LB. LINERBOARD

177258	N.F.	2/25/58	-	46.1	46.1	0.0	13.0	12.6	-0.4	115	113	- 2	339[a]	339	0	387[a]	407	+20
177259	N.F.	2/26/58	-	43.8	45.1	+1.3	13.2	13.1	-0.1	101	109	+ 8	354[a]	313	-41	373[a]	384	+11
177260	N.F.	2/27/58	-	44.4	43.8	-0.6	13.2	12.8	-0.4	103	106	+ 3	334[a]	332	- 2	377[a]	359	-18
177731	N.F.	3/12/58	-	44.0	45.0	+1.0	12.9	12.2	-0.7	104	109	+ 5	326[a]	301	-25	357[a]	383	+26
177732	N.F.	3/13/58	-	43.8	43.7	-0.1	12.1	12.0	-0.1	108	111	+ 3	329	307	-22	359[a]	325	-34
177733	N.F.	3/14/58	-	44.1	44.3	+0.2	13.0	12.8	-0.2	114	116	+ 2	331[a]	329	- 2	367[a]	345	-22
177792	N.F.	3/19/58	-	44.8	44.5	-0.3	13.1	12.8	-0.3	109	112	+ 3	352[a]	327	-25	362[a]	355	- 7
177793	N.F.	3/20/58	-	46.0	45.7	-0.3	13.4	12.8	-0.6	105	108	+ 3	322[a]	317	- 5	357[a]	363	+ 6
177794	N.F.	3/21/58	-	44.5	44.5	0.0	13.1	12.8	-0.3	108	114	+ 6	331[a]	313	-18	364[a]	357	- 7
Current Mill Average:				44.6	44.7	+0.1	13.0	12.7	-0.3	107	111	+ 4	335	320	-15	367	364	- 3

[a] Mill average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: Mill "current mill average" data are calculated from the totals of the individual readings.

[illegible] OF IPC AND MILL DATA--[illegible] 1 THROUGH MARCH 31, 1959 (continued)

TABLE XXVII

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
177538	W.B.	2/27/58	-	42.4	42.2	-0.2	11.7	11.4	-0.3	118	116	-2	357[a]	348	- 9	407[a]	423	+16
177540	W.B.	2/27/58	-	41.7	41.7	0.0	11.5	11.0	-0.5	117	114	-3	358[a]	340	-18	399[a]	389	-10
177541	W.B.	2/27/58	-	43.0	42.7	-0.3	12.1	11.7	-0.4	113	118	+5	339[a]	372	+33	397[a]	424	+27
177542	W.B.	2/28/58	-	42.7	42.4	-0.3	12.2	11.8	-0.4	107	114	+7	383[a]	372	-11	427[a]	435	+ 8
177690	W.B.	2/28/58	-	42.5	42.4	-0.1	11.8	11.3	-0.5	112	114	+2	353[a]	368	+15	421[a]	419	- 2
177691	W.B.	3/ 1/58	-	43.1	42.5	-0.6	12.5	11.9	-0.6	109	110	+1	367	344	-23	419[a]	407	-12
177797	W.B.	3/ 8/58	-	42.6	42.1	-0.5	12.2	11.8	-0.4	110	108	-2	391[a]	331	-60	414[a]	373	-41
177798	W.B.	3/11/58	-	42.0	42.0	0.0	11.7	11.4	-0.3	113	114	+1	352[a]	317	-35	375[a]	351	-24
177799	W.B.	3/12/58	-	43.1	42.4	-0.7	12.3	11.7	-0.6	108	109	+1	370[a]	341	-29	394[a]	377	-17
Current Mill Average:				42.6	42.3	-0.3	12.0	11.6	-0.4	112	113	+1	363	348	-15	406	400	- 6

TABLE XXVIII

MILL D -- 42-LB. LINERBOARD

177697	WFIS	2/24/58	1	44.9	42.4	-2.4	13.4	12.6	-0.8	113	112	-1	301	288	-13	385[a]	381	- 4
177734	WFIS	3/11/58	1	43.4	42.8	-0.6	13.2	12.5	-0.7	110	107	-3	307	240	-67	353[a]	331	-22
Current Mill Average:				44.1	42.6	-1.5	13.3	12.6	-0.7	112	110	-2	304	264	-40	369	356	-13

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XXIX

MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
177255	W.F.	2/20/58	1	43.8	42.7	-1.1	12.7	12.9	+0.2	111	110	-1	299[a]	302	+ 3	367[a]	363	- 4
177800	W.F.	3/ 3/58	1	43.9	43.0	-0.9	12.8	13.0	+0.2	112	114	+2	304	317	+13	354[a]	373	+19
177801	W.F.	3/ 6/58	1	44.2	43.6	-0.6	12.9	13.1	+0.2	112	116	+4	316	317	+ 1	352[a]	372	+20
Current Mill Average:				44.0	43.1	-0.9	12.8	13.0	+0.2	112	114	+2	306	312	+ 6	358	370	+12

TABLE XXX

MILL F -- 42-LB. LINERBOARD

177435	W.F.	2/18/58	2	43.0	43.1	+0.1	12.5	12.1	-0.4	105	113	+8	306[a]	310	+ 4	367[a]	349	-18
177436	W.F.	2/18/58	2	43.8	43.2	-0.6	12.3	12.1	-0.2	111	113	+2	306	295	-11	344[a]	365	+21
177511	W.F.	2/20/58	2	43.3	43.5	+0.2	12.4	12.3	-0.1	113	111	-2	305	315	+10	369[a]	358	-11
177512	W.F.	2/20/58	2	43.6	43.4	-0.2	12.6	12.3	-0.3	110	108	-2	311	303	- 8	368[a]	347	-21
177654	W.F.	3/ 4/58	2	43.2	42.8	-0.4	12.5	12.0	-0.5	110	112	+2	291	285	- 6	375[a]	333	-42
177655	W.F.	3/ 4/58	2	43.6	43.1	-0.5	12.2	12.0	-0.2	112	110	-2	290	275	-15	366[a]	352	-14
177656	W.F.	3/ 8/58	2	43.4	43.4	0.0	12.5	12.3	-0.2	106	112	+6	301	306	+ 5	360[a]	345	-15
177657	W.F.	3/ 8/58	2	43.5	43.7	+0.2	12.6	12.2	-0.4	109	109	0	319	305	-14	359[a]	332	-27
Current Mill Average:				43.4	43.3	-0.1	12.4	12.2	-0.2	109	111	+2	304	299	- 5	364	348	-16

[a]This average includes the readings for one or more specimens which tore beyond the 3/3-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

...ISON OF INSTITUTE AND MILL DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XXXI

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch No.	Basis Weight, lb			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff	IPC	Mill	Diff	IPC	Mill	Diff.
177-34		2/15/58	4	42 9	42 5	-0.4	12.5	12.1	-0 4	110	109	-1	367	344	-23	346[a]	361	+15
177302		3/ 5/58	2	43 6	43 2	-0.4	13.9	13.6	-0.3	110	110	0	364[a]	341	-23	382[a]	399	+17
177303		3/ 6/58	2	41 6	41.5	-0.1	13.6	13.1	-0.5	107	108	+1	334[a]	334	0	365[a]	361	- 4
Current Mill Average				42.7	42.4	-0.3	13.3	12.9	-0.4	109	109	0	355	340	-15	364	374	+10

TABLE XXXII

MILL H -- 42-LB LINERBOARD

177099	F	2/16/58	4	43.2	42.9	-0.3	11.0	10.8	-0.2	120	115	-5	340[a]	295	-45	372[a]	328	-44
177100	F	2/17/58	4	44.0	43.8	-0.2	12.0	11.5	-0.5	114	106	-8	359[a]	307	-52	383[a]	357	-26
177101	F	2/17/58	4	44.4	43.9	-0.5	11.8	11.3	-0.5	112	106	-6	359[a]	289	-70	401[a]	349	-52
Current Mill Average				43 8	43 5	-0 3	11.6	11.2	-0.4	115	109	-6	353	297	-56	385	345	-40

[a] Average includes test readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: 'Current Mill Average' data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XXXIII

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mach. No.	Basis Weight, lb			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
177261	.F	2/16/58	2	43.7	43.8	+0.1	12.9	12.7	-0.2	115	118	+3	343[a]	377	+34	391[a]	416	+25
177262	.F	2/17/58	2	43.7	43.7	0.0	12.9	12.8	-0.1	120	119	-1	341[a]	367	+26	390[a]	430	+40
177513	.F	2/27/58	2	43.9	44.0	+0.1	13.2	13.1	-0.1	116	119	+3	354[a]	378	+24	379[a]	420	+41
177527	.F	3/ 3/58	2	43.8	42.9	-0.9	13.3	12.9	-0.4	112	114	+2	345	360	+15	385[a]	417	+32
Current Mill Average				43.8	43.6	-0.2	13.1	12.9	-0.2	116	118	+2	346	370	+24	386	420	+34

TABLE XXXIV

MILL J -- 42-LB LINERBOARD

177256	.F	2/16/58	2	43.7	43.4	-0.3	12.6	12.3	-0.3	118	117	-1	310[a]	328	+18	367[a]	376	+ 9
177257	.F.	2/17/58	2	43.8	43.0	-0.8	12.5	12.2	-0.3	119	118	-1	310[a]	322	+12	389[a]	370	-19
177627	.F	3/ 2/58	2	43.9	43.0	-0.9	12.2	12.0	-0.2	118	116	-2	343[a]	306	-37	387[a]	375	-12
177655	.F	3/ 5/58	2	44.0	43.5	-0.5	12.6	12.5	-0.1	119	119	0	359[a]	420	+61	385[a]	452	+67
177704	.FLS	3/14/58	2	43.6	42.8	-0.8	11.5	11.2	-0.3	114	117	+3	326[a]	293	-33	373[a]	362	-11
177705	.FLS	3/14/58	2	44.0	42.9	-1.1	11.9	11.4	-0.5	114	115	+1	314	292	-22	370[a]	342	-28
Current Mill Average				43.8	43.1	-0.7	12.2	11.9	-0.3	117	117	0	327	327	0	379	379	0

[a] Average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

"Current Mill Average" data are calculated from the totals of the individual readings

[illegible] DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XXXV

MILL K -- 42-LB. LINERBOARD

Sample No.	Finish	Date Made	Mon. No.	Basis Weight, lb			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
177508	FIS	2/28/58	1	42.1	41.7	-0.4	13.2	12.9	-0.3	106	107	+1	306	327	+21	348[a]	372	+24
177509	FIS	2/28/58	1	42.6	41.7	-0.9	13.2	12.9	-0.3	107	108	+1	331	337	+ 6	349[a]	373	+24
177510	FIS	3/ 7/58	1	43.1	42 0	-1.1	12.6	12.3	-0.3	113	117	+4	326[a]	355	+29	381[a]	410	+29
177795	FIS	3/18/58	1	43.1	41.9	-1.2	12.7	12.1	-0.6	113	110	-3	297[a]	257	-40	353[a]	333	-20
177796	FIS	3/18/58	1	43.4	41.8	-1.6	12.8	12.1	-0.7	113	111	-2	310[a]	248	-62	357[a]	335	-22
Current Mill Average				42.9	41.8	-1.1	12.9	12.5	-0.4	110	111	+1	314	305	- 9	358	365	+ 7

TABLE XXXVI

MILL L -- 42-LB. LINERBOARD

No samples submitted

TABLE XXXVII

MILL M -- 42-LB. LINERBOARD

177[illegible]	S F	2/26/58	7	42.9	42.8	-0.1	13.4	13.1	-0.3	101	105	+4	343[a]	348	+ 5	376[a]	397	+21
Current Mill Average				42.9	42.8	-0.1	13.4	13.1	-0.3	101	105	+4	343	348	+ 5	376	397	+21

[a] Its average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "Current Mill Average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XXXVIII

MILL N -- 42-LB LINERBOARD

Sale No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff	IPC	Mill	Diff.	IPC	Mill	Diff	IPC	Mill	Diff.	IPC	Mill	Diff.
177537	AFIS	3/ 3/58	1	42.6	42.1	-0.5	11.8	11.7	-0.1	113	108	-5	319[a]	335	+16	393[a]	397	+ 4
177538	AFIS	3/ 4/58	1	42.6	42.2	-0.4	11.6	11.7	0.1	114	108	-6	315	336	+21	399[a]	397	- 2
177692	AFIS	3/13/58	1	42.2	42.4	+0.2	11.7	11.8	+0.1	116	107	-9	321	339	+18	401[a]	419	+18
Current Mill Average				42.5	42.2	-0.3	11.7	11.7	0.0	114	108	-6	318	337	+19	397	404	+ 7

TABLE XXXIX

MILL O -- 42-LB. LINERBOARD

[illegible]	[illegible]	2/ 2/58	1	41.4	41.8	+0.4	12.8	12.9	+0.1	107	109	+2	265	279	+14	353[a]	357	+ 4
[illegible]	[illegible]	2/ 3/58	1	42.6	41.5	-1.1	12.8	12.9	+0.1	110	109	-1	289	277	-12	356[a]	371	+15
[illegible]	[illegible]	[illegible]	1	43.4	41.6	-1.8	13.5	12.9	-0.6	114	114	0	269	198	-71	334[a]	287	-47
[illegible]	[illegible]	[illegible]		43.1	42.8	-1.3	13.0	12.7	-0.3	111	114	+3	287[a]	200	-87	334[a]	281	-53
[illegible]	[illegible]	[illegible]	1	42.6	41.6	-1.0	12.8	12.7	-0.1	107	113	+6	269[a]	196	-72	326[a]	281	-45
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-1.6	13.3	12.8	-0.4	111	116	+5	271[a]	205	-66	332[a]	308	-24
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-1.0	13.0	12.8	-0.2	110	112	+2	275	226	-49	339	314	-25

[a] Average includes one or more results from one or more specimens which tore beyond the 8-inch limit.

Note: All current mill averages data are calculated from the totals of the individual readings.

CC PARISON OF INSTITUTE AND MILL DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XL

MILL P -- 42-LB. LINERBOARD

ple	Finish	Date Made	Mch. No	Basis Weight, lb			Caliper, points			Bursting Strength, p.s.i gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
177394	F	2/16/58	-	43.4	44.0	+0.6	11.2	11.5	+0.3	109	106	-3	343[a]	374	+31	360[a]	411	+51
177395	F	2/16/58	-	43.3	43.4	+0 1	11.3	11 1	-0.2	110	108	-2	341[a]	373	+32	368[a]	412	+44
177396	F	2/17/58	-	43 1	42.7	-0.4	12.3	12.1	-0.2	114	113	-1	330[a]	339	+ 9	344[a]	385	+41
177397	F	2/17/58	-	43.4	43.1	-0.3	12.3	12.1	-0.2	112	110	-2	344[a]	359	+15	340[a]	386	+46
177658	F	3/ 3 58	-	44.4	43.7	-0.7	12.8	12.3	-0.5	118	117	-1	371[a]	353	-18	385[a]	380	- 5
177659	F	3/ 3/58	-	43.9	43.6	-0.3	12.6	12.2	-0.4	106	108	+2	365[a]	361	- 4	370[a]	381	+11
Current Mill Average				43.6	43.4	-0.2	12.1	11.9	-0.2	111	110	-1	349	360	+11	361	392	+31

TABLE XLI

MILL Q -- 42-LB LINERBOARD

	F	1/20 58	-	44.9	44 4	-0 5	12.1	12.1	0.0	122	119	-3	345[a]	325	-20	398[a]	412	+14
		2/25/58	-	42.9	42 9	0.0	11.8	11.8	0.0	119	118	-1	340[a]	337	- 3	371[a]	411	+40
			-	42 4	42.2	-0.2	11.7	11.8	+0.1	115	117	+2	324[a]	316	- 8	349[a]	387	+38
			-	42 8	43.2	+0.4	12 0	----	---	115	119	+4	321[a]	309	-12	351[a]	353	+ 2
			-	43.6	43 2	-0 6	11.7	11.6	-0.1	125	125	0	353[a]	324	-29	382[a]	368	-14
			-	44 0	44 2	+0.2	11.8	11.6	-0.2	123	123	0	348[a]	311	-37	393[a]	387	- 6
			-	43 1	43 1	-0.2	11 8	11 6	-0.2	116	116	0	330[a]	303	-27	355[a]	359	+ 4
			-	43 8	43 1	-0 7	11 8	11 6	-0.2	124	124	0	337	327	-10	370[a]	381	+11
				43 6	43 4	-0 2	11.8	11.7	-0 1	120	120	0	349	319	-19	371	382	+11

[a] ... readings for one or more specimens which tore beyond the pendulum limit

... averages data are calculated from the totals of the individual readings

COMPARISON OF INSTITUTE AND MILL DATA--MARCH 1 THROUGH MARCH 31, 1958 (continued)

TABLE XLII

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Lab No.	Basis Weight, lb			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff	IPC	Mill	Diff.
177752	FIS	3/11/58	2	43.8	43.9	+0.1	13.4	13.2	-0.2	118	118	0	354[a]	375	+21	395[a]	437	+42
177753	FIS	3/12/58	2	42.5	43.0	+0.5	13.0	12	-1.0	121	122	+1	338[a]	326	-12	381[a]	404	+23
177791	FIS	3/17/58	2	43.5	44.3	+0.8	13.9	13.6	-0.3	113	115	+2	360[a]	386	+26	394[a]	404	-10
Current Mill Average				43.3	43.7	+0.4	13.4	12.9	-0.5	117	118	+1	351	362	+11	390	415	+25

TABLE XLIII

MILL R -- 47-LB. DRUM LINERBOARD

No samples submitted

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit

All "Current Mill Average" data are calculated from the totals of the individual readings